REMARKS

Responsive to the Office Action mailed on May 29, 2002, Applicants have amended claim 17, without prejudice to file subsequent amendments or claims directed to other aspects of the invention and/or the teachings in the specification of the above-captioned patent application. The specification has also been amended to correct a typographical error.

Support for the amendment to the specification can be found at least at page 7, lines 31 and 33; page 8, lines 3, 5, 7, 14, 16, 18, 19, 26, 27, and 29. Support for the claim amendments can be found in the specification at least at page 32, lines 3-5 and page 33, lines 4-7. Accordingly, the proposed amendments are fully supported by the application as originally filed and no new matter has been entered.

The Provisional Double Patenting Rejection

Original claim 17 was provisionally rejected under the judicially created doctrine of obviousness-type double patenting as being obvious over claims of co-pending Application No. 09/747,891. This application has issued as U.S. Patent No. 6,454,938 (hereinafter sometimes referred to as the "'938 patent").

By way of background, the present application and the '938 patent share an identical specification. However, Kionix filed the application for the '938 patent independently of Advion based upon Kionix's belief that only Kionix employees were inventors of the claims of the '938 patent. The parent of the present divisional application was filed jointly by Advion and Kionix based upon Applicants' belief that employees of each company were inventors. Advion did not know that Kionix had filed the application for the '938 patent at the time of filing. Advion subsequently filed a lawsuit against Kionix and initiated an interference to have inventorship considered with respect to related applications.

Applicants believe the amendment to claim 17 renders the current provisional rejection moot. In the event the Examiner enters a new double patenting rejection over the '938 patent, Applicants suggest that the most reasonable course would be to stay consideration of the merits of any such double patenting rejection pending resolution of the lawsuit and/or interference.

The Anticipation and Obviousness Rejections

Original claim 17 was rejected under 35 U.S.C. § 102(e) as being anticipated by or, in the alternative, under 35 U.S.C. § 103(a) as obvious over U.S. Patent No. 5,994,696 to Tai et al. ("Tai").

Tai discloses a MEMS electrospray nozzle for mass spectroscopy. Particle filter structures are patterned into the fluid channel to trap debris and prevent clogging of the tip. The channel field and the tip channel can be derivitized hydrophobic or hydrophilic to accommodate the type of sample to be analyzed. A potential difference is generated at the nozzle tip between the fluid and an electrode of the mass spectrometer to ionize the sample.

The Examiner notes that Tai fails to clearly teach a stationary phase applied within the channel. Additionally, as amended, claim 17 requires an insulating layer on the surface of the posts, which electrically insulates the fluid stream from the substrate. For at least these reasons Tai does not anticipate each and every feature of the present claim.

Moreover, there is no motivation to modify the structure of Tai to provide an insulation layer. Tai does not teach or suggest the concept of applying a potential difference between the substrate and the fluid, as for example, when placing an electrode on the substrate having a potential different from that of the fluid. As such, a person of ordinary skill in the art would not consider modifying Tai in the manner suggested by the Examiner.

Accordingly, for at least the reasons noted above, Tai fails to anticipate or render obvious the presently claimed invention. Withdrawal of the record rejection of claim 17 in view of Tai is respectfully requested.

Original claim 17 was rejected under 35 U.S.C. § 103(a) as obvious over Tai in view of Snyder, Introduction to Modern Liquid Chromatography, pages 270-272 and 277-278 ("Snyder").

The limited teachings of Tai were noted above. Snyder discloses that the most widely used chromatography packing is a surface reacted, chemically bonded organic stationary phase; reverse-phase hydrocarbon (hydrophobic) coatings are the closest to a universal stationary phase; and a hydrophilic layer is used for gel filtration chromatography.

Applicants find no motivation to modify the structure of Tai to include the stationary phase of Snyder in the manner suggested by the Examiner. Tai teaches the use of particle filter structures for removal of debris from the fluid stream to prevent channel and tip clogging. In addition, Tai teaches at column 5, lines 25-27 to modify the channel field and

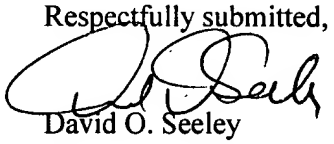
the tip to match the hydrophobic/hydrophilic nature of the sample, presumably for improved ionization. There is no motivation to provide the structures of Tai with a stationary phase.

Moreover, Snyder fails to make up for the deficiencies of the Tai disclosure with respect to the missing insulation layer. Thus, even if the teachings of the cited references were properly combinable, which they are not, the proposed combination would not provide all the features of the claimed invention.

Accordingly, for at least the reasons noted above, the combined teachings of Tai and Snyder fail to render obvious the presently claimed invention. Applicants request that the Examiner find claim 17 allowable.

Dated this 18th day of November, 2002.

Respectfully submitted,



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PATENT TRADEMARK OFFICE

Appendix A

Marked-Up Version Showing Changes Made to the Application

In reference to the amendments made herein to the paragraph bridging pages 8 and 9 of the specification and claim 17, additions appear as underlined text, while deletions appear as bracketed text, as indicated below:

In the Specification:

In all of the above-described devices, edge-spraying from a [monolithic] microchip is a poorly controlled process due to the inability to rigorously and repeatedly determine the physical form of the chip's edge. In another embodiment of edge-spraying, ejection nozzles, such as small segments of drawn capillaries, are separately and individually attached to the chip's edge. This process is inherently cost-inefficient and unreliable, imposes space constraints in chip design, and is therefore unsuitable for manufacturing.

In The Claims:

17. (Amended) A chemical separation device comprising:

a substrate defining a channel,

a plurality of posts fabricated from said substrate and extending from said channel, an electrically insulating layer on the surface of the plurality of posts and

a stationary phase bound to the posts, said posts providing interaction with an analyte introduced into said channel for producing separation, wherein said analyte is electrically insulated from said substrate.